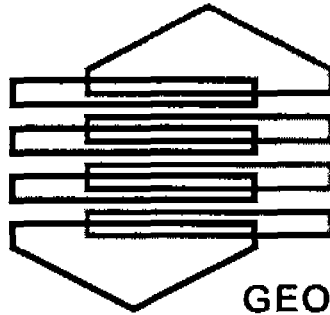


Thermal Conductivity Test Report

Thermal Test



Ewbank
and associates

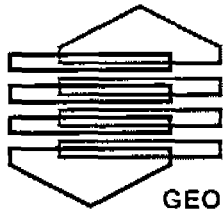
GEO SYSTEMS PROFESSIONALS

*Midway Middle School
Midway, Tennessee*

Thermal Test

Earth Energy Engineering

Ewbank and Associates
P.O. Box 148
Fairview, Oklahoma 73737
580-227-3352



**Ewbank
and associates**

GEO SYSTEMS PROFESSIONALS

P.O. Box 148, Fairview, Oklahoma 73737 Phone/Fax 580-227-3352 E-mail ewbank@fairview-ok.net

**Thermal Conductivity Test Results
Midway Middle School
Midway, Tennessee**

Earth Energy Engineering performed a thermal conductivity test at the Midway Middle School in Midway, Tennessee on September 6, 2001. Testing was done by Fred Allison with a Ewbank portable test unit.

The test borehole was 300 feet in depth and 4" in diameter. A 1" inch loop was installed and the borehole was backfilled with #8 stone. Static water level was reported. The formations encountered were reported as primarily limestone and shale.

The thermal conductivity (k) value for this borehole is **1.5 btu/degree F-hr-foot**. This is an average conductivity per foot for the borehole. This value represents the rate at which the borehole and rock will transfer heat.

To accurately measure the thermal conductivity of the formation a borehole should be drilled and grouted with a bentonite grout to prevent any flow of water through the borehole.

All test equipment, methods, procedures, calculations, and interpretation is done in accordance with the recommendations and guidelines of the International Ground Source Heat Pump Association.

EARTH ENERGY/DENVER DIGGIN TEST HOLE DRILL LOG

DATE: Aug 10, 2001
CLIENT: TVA
START DATE: 8/9

DRILLER: Kevin Schischkowsky
TOTAL DEPTH: 700'
COMPLETION DATE: 8/10

[illegible]

BY: for [Signature]
DENVER DIGGIN SERVICES, INC.

APPROVED: _____
EARTH ENERGY ENGINEERING, INC.